SUPERFUND PRELIMINARY SITE CLOSEOUT REPORT
FINAL REMEDIAL ACTION
For the
Himco Dump Superfund Site
Elkhart, Indiana

I. INTRODUCTION

This Preliminary Closeout Report (PCOR) documents that all physical construction activities have been completed at the Himco Dump (Himco) Superfund site, Elkhart, Indiana, in accordance with the U.S. Environmental Protection Agency's (EPA) *Close Out Procedures for National Priorities List Sites* (OSWER Directive 9320.2-09A-P (January 2000)). Himco is a potentially responsible party (PRP)-lead site and the remedial action (RA) was conducted pursuant to a consent decree (CD) with EPA that was entered on November 28, 2007 (Civil Action No. 2:07-cv-304-TS). EPA is the enforcement lead for the Himco site and has been overseeing the cleanup activities performed by Bayer Healthcare, LLC (Bayer), the participating PRP.

EPA, assisted by the Indiana Department of Environmental Management (IDEM), conducted a pre-final inspection with Bayer at the site on June 14, 2012, to ensure that the cleanup was constructed in accordance with the approved remedial design (RD) plans and specifications required under the CD. The RA included making enhancements to the existing soil cover, installing a landfill gas management system, connecting selected residences to city water, abandoning drinking water wells on homes connected to city water, and cleaning up contamination in the construction debris area (CDA) of the site. EPA verified during the inspection that Bayer conducted the RA in accordance with approved RD plans and specifications and on June 21, 2012, the Agency sent Bayer a punch list of items that needed to be addressed by Bayer before certifying completion. Bayer sent EPA a construction report on June 29, 2012, and certified in the report that all items on the punch list were completed (see Attachment).

Institutional controls (ICs) in the form of restrictive covenants are in place to ensure all existing private drinking water wells were abandoned and to prohibit the use of groundwater by each home that was provided city water on the east side of the landfill. An IC in the form of a restrictive covenant, to restrict future use of the landfill, was being worked on at the time of the pre-final inspection by the PRP. Lastly, abandonment of remaining private drinking water wells south of the former landfill was completed in mid-July. Therefore, the Himco site has achieved construction completion status.

II. SUMMARY OF SITE CONDITIONS

Site Description

The Himco site is a closed, unlicensed landfill located at the intersection of County Road 10 (CR 10) and John Weaver Parkway, Cleveland Township, in Elkhart County, Indiana.

The site is approximately 60 acres and was in operation between 1960 and 1976. The area was initially a mixture of marsh and grassland. Wastes, including household refuse, construction rubble, medical waste, and calcium sulfate, were placed in the landfill when it was in operation. In 1976, the landfill was closed and covered with about one foot of sand overlying a calcium sulfate layer. A mix of agricultural, residential, and commercial/light industrial areas surrounds the site. A perimeter fence and locked gate prevent unauthorized parties from entering. A four-acre area called the construction debris area (CDA), bordered the former landfill to the south. The CDA encompassed parts of the backyards of 7-8 homes located on the southern end of the landfill.

Site History and Enforcement Activities

Detailed below is a chronology of the site history and enforcement activities:

1974 - The Indiana State Board of Health analyzed samples from shallow residential wells located immediately south of the site after receiving complaints about the color, taste, and odor of groundwater from the shallow wells. The analyses indicated the presence of high levels of manganese in the water samples.

1981 - The U.S. Geological Survey (USGS), in cooperation with the Indiana Department of Natural Resources and the Elkhart Water Works, completed a three-year study that determined the extent of a leachate plume potentially emanating from the site by using bromide ion concentrations in the groundwater as an indicator.

1984 – EPA's field investigation team sampled monitoring wells previously installed by the USGS. Laboratory analyses showed that metals, semivolatile organic compounds (SVOCs), and volatile organic compounds (VOCs) impacted the groundwater downgradient of the Himco site. The metals detected included aluminum, arsenic, barium, chromium, cobalt, selenium, beryllium, cadmium, copper, zinc, manganese, lead, nickel, and mercury. Organic compounds detected included acetone, benzene, phenol, Freon, 4-methylphenol, trans-1,2-dichloroethene, 2-butanone, chloroethane, and pyrene.

June 24, 1988 - The Himco site was proposed for the National Priorities List (NPL).

1989 – EPA initiated a Fund-lead Remedial Investigation/Feasibility Study (RI/FS).

February 21, 1990 - The Himco site was placed on the NPL.

April 1990 - Due to reports from community interviews indicating that residents with private wells living south of the landfill were complaining about the taste, odor, and the color of their water, EPA's removal program sampled 27 residential wells in late April 1990. The water quality analyses indicated relatively high concentrations of iron, manganese, and sodium. After review of the results, the Agency for Toxic Substances and Disease Registry (ATSDR) recommended an alternative source of potable water be provided to the residents due to the high levels of sodium (at 3,600 parts per million (ppm)), which had profound implications for persons who suffered from hypertension, diabetes, and heart ailments.

September 1991 - Test pits were excavated to characterize site constituents during the remedial investigation. During one of the excavations, large quantities of leachate were observed flowing from fill materials. The leachate was observed near the southern edge of the landfill. The leachate was analyzed and found to contain organic solvents including ethylbenzene (6,400 ppm), 2-hexanone (29,000 ppm), toluene (480,000 ppm), and xylene (44,000 ppm). These contaminants all have an inhalation and contact hazard to persons near the hazards, and have flash points ranging from 40-90 degrees Fahrenheit. The test pits where the hazardous substances were found were located within fifty yards from the private residences.

November 1991- Municipal water service was provided to the residents living south of the landfill. Himco Waste Away Services, Inc., Miles Laboratories, and the city of Elkhart paid for the municipal water service extensions to the residences.

May 19, 1992 - Mr. Charles Himes, Jr., President of Himco Waste-Away Services Inc., signed an Administrative Order on Consent (AOC) to undertake and complete emergency removal activities to abate conditions that presented an imminent and substantial endangerment to the public. The AOC required Himco to excavate in the vicinity of one of the test pits identified (TL-5) to locate the buried VOCs and their source. The AOC also required limited extent of contamination surveys along the southeast central periphery of the site to assure that no additional VOCs were encountered.

May 22, 1992 – Himco performed an emergency removal action, locating and removing seventy-one (71), 55-gallon drums containing 50 percent (%) VOCs, such as ethyl benzene and toluene. EPA conducted oversight of this removal action.

1992 - The Remedial Investigation/Feasibility Study (RI/FS) Report was completed.

September 30, 1993 - EPA issued a Record of Decision (ROD) for the site.

April 1995 – EPA conducted a pre-design groundwater investigation. Information collected during this investigation supported a change in the remedy.

1996, 1998 and 2000 Supplemental Site Investigations - Additional site investigations were carried out by EPA from 1996 to 2000. The 1996 groundwater investigation was conducted to confirm the groundwater analytical detections of the 1995 pre-design investigation, primarily benzene found in monitoring well WT116A. The objectives of the 1998 supplemental site investigation were to gather analytical data to support the completion of a supplemental human health risk assessment and to characterize soil gas constituents. Soil, soil gas, and groundwater samples were obtained during the 1998 survey. The primary objectives of the 2000 supplemental site investigation were to quantify the lateral migration of landfill associated gases to the east of the landfill, to confirm the presence or absence of constituents that may contribute to the Himco site area groundwater risk, to determine the degree in which groundwater at the site is currently being affected in both a horizontal and vertical sense by the landfill, and to define any temporal/spatial patterns or trends in the groundwater geochemistry related to

the landfill. Groundwater samples were collected from underneath the landfill and in selected residential wells during the 2000 survey.

2002 Supplemental Site Investigation/Site Characterization Report (SSI/SCR) – This report summarized the health risk associated with soil and the groundwater for the CDA and the groundwater for the residential area east of the landfill. The results of the risk assessment indicated a potential for unacceptable risks to adults, children, and construction workers posed by contaminated soil from the CDA and groundwater migrating eastward from the landfill.

September 14, 2004 – Based on new information gathered since issuance of the ROD, EPA issued a ROD Amendment. The remedy called for 1) enhancing the existing cover, ensuring at least 18 inches of soil cover throughout the landfill, along with a gas management system 2) removing debris and contaminated material from the CDA 3) providing alternative drinking water to 39 homes south and southeast of the site, along with abandoning the drinking water wells from these homes 4) implementing a long-term groundwater monitoring program and 5) placing ICs on the landfill and other areas to limit future use, prohibit the installation of groundwater wells on site, and requiring the abandonment of private drinking water wells at homes provided with city water.

November 28, 2007 – The RD/RA Consent Decree was entered in court. The state is named as co-plaintiff in the decree.

June 2010 – Final RD plans for the landfill/gas management system were approved by EPA. Concurrent with approval of these plans, Bayer completed the hookups of 39 homes located east of the landfill to the city's water supply, in accordance with the CD and ROD Amendment. The water hookups were completed prior to the end of 2010.

July 21, 2010 – EPA issued a notice to proceed with RA. Bayer initiated clearing and grubbing operations in November 2010. Prior to start of this work, EPA and IDEM worked with Bayer to ensure that no threatened or endangered species were affected by the operation (there were no threatened or endangered species at the site). The issue of migratory birds potentially nesting on trees inside the landfill was resolved through consultation with the state's natural resources agency.

March 2011 – Bayer mobilized to the site to conduct the RA.

June 14, 2012 – EPA conducted a pre-final construction inspection of the site. A punch list of remaining activities to be completed was prepared by the Agency on June 21, 2012.

June 29, 2012 – Bayer submitted a pre-final construction report that indicated the punch list of items referenced in EPA's June 14th letter had been completed.

July 2012 – Bayer abandoned the remaining two private drinking water wells at the southern end of the landfill.

Site Characteristics

The Himco site is bordered to the north by a quarry pond, which was formerly a sand and gravel pit, and agricultural land. John Weaver Parkway lies immediately to the east and residential properties beyond. County Route (CR) 10 forms the southern boundary, with additional residential homes further south. Undeveloped land and agricultural properties lie to the west.

Elkhart County is located in the St. Joseph River Basin, a thick sequence of glacial outwash deposits ranging from 85 to 500 feet that overlies the bedrock. In the vicinity of the site, these overburden deposits consist primarily of outwash sands and gravels that contain both minor lenses of silt and clay, along with a regionally significant clay/silt dominated interval of variable thickness. The geology of the site consists, in descending order, of: 1) upper sand and gravel; 2) intermediate sand and gravel with silt/clay layers; 3) lower sand and gravel; and 4) bedrock. Regional groundwater flows in a south/southeast direction underneath the site.

According to the RI performed in 1991-1992, soil samples indicated the presence of arsenic across the western half of the site in concentrations up to an order of magnitude greater than background. Volatile organic compounds (VOCs) such as benzene, toluene, xylene, trichloroethene, and 1,1-dichloroethane were distributed at low levels in soil across the site. Semivolatile organic compounds (SVOCs), primarily polynuclear aromatic hydrocarbons (PAHs), were most prominent in samples collected from the south-central area characterized by non-native soil and construction debris. According to the 2002 Supplemental Site Investigation/Site Characteristics Report(SSI/SCR), two isolated detections of BTEX compounds were found, one on the south side of CR 10, and one on the east side of John Weaver Parkway. In addition, there were three isolated detections of chlorinated ethenes/ethanes also found on the east side of John Weaver Parkway. Soil data from the CDA indicated the presence of PAHs, SVOCs, and metals such as arsenic, lead, and mercury.

The 2002 SSI/SCR report concluded that the fate and migration of contaminants found in the landfill and CDA were dependent on the geologic conditions and the chemical properties of the contaminants. In all cases, the highest detected concentrations of contaminants in soil gas samples were located in the southeast corner of the site, just northwest of the intersection of CR 10 and John Weaver Parkway.

Selected Remedy

The selected remedy for the site, as described in the 2004 ROD Amendment, is as follows:

- Contour, grade, and vegetate the existing landfill cover and install a gas management system. The landfill gas collection and treatment system shall include as necessary, a vapor phase carbon collection and treatment system and an enclosed ground flare system;

- In the CDA, 1) remove all construction debris and rubble from the surface; and 2) excavate and dispose of contaminated materials in the soil to achieve remedial action objectives (RAOs) established for the CDA soil;

- Provide city water to 39 designated homes east of the landfill, along with abandoning the existing drinking water wells from these homes. Drinking water wells on homes south of the landfill shall also be abandoned;

- Establish a long-term groundwater monitoring program for a minimum of 10 years;

- Prior to implementing the long-term groundwater monitoring program, complete a pre-design groundwater investigation study on the south, east and southeast sides of the site to determine the contaminant concentration, rate and extent of migration of all detected contaminants;

- Place institutional controls on the landfill, residential homes east and south of the landfill, Parcel F, and residential wells near the CDA; and

- Install fencing around Parcel F, the CDA, and the landfill.

This remedy is intended to meet the RAOs for the site. The RAOs identified in the 2004 ROD Amendment are:

Landfill Cover and CDA:

- To prevent exposure to landfill and CDA soil which contains carcinogens that present a total excess cancer risk above EPA's acceptable risk range of 1×10^{-4} to 1×10^{-6} for all site-related contaminants through all exposure pathways (i.e., ingestion, inhalation of soil-derived substances, and dermal contact);
- To prevent the exposure to landfill and CDA soil which contains noncarcinogens that present a total noncarcinogenic hazard index (HI) greater than 1.0 for all site-related contaminants through all exposure pathways (i.e. ingestion, inhalation of soil-derived substances, and dermal contact);
- To prevent direct contact with the landfill and CDA contents that presents a potential physical hazard; and
- To maintain the integrity of the soil cover over the long-term.

Groundwater:

- To prevent the use of groundwater which contains carcinogens in excess of MCLs or that present a total excess cancer risk above EPA's acceptable risk range of 1×10^{-4} to 1×10^{-6} for all site-related contaminants through all groundwater pathways (inhalation of volatilized substances, ingestion, and dermal contact);
- To prevent the use of groundwater which contains noncarcinogens in excess of MCLs and/or that present a total noncarcinogenic HI greater than 1.0 for all site-related

contaminants through all groundwater pathways (inhalation of volatilized substances, ingestion, and dermal contact).

- To prevent the use of groundwater which contains site-related sodium, calcium, and iron in excess of their upper intake limits or recommended dietary allowances for sensitive populations.
- To establish a groundwater-monitoring program that will ensure compliance with all of the RAOs listed above for groundwater.

Air:

- To prevent inhalation of indoor air that contains carcinogens that present a total excess cancer risk above EPA's acceptable risk range of 1×10^{-4} to 1×10^{-6} for all site-related contaminants released from the subsurface vapor migration pathway.
- To prevent inhalation of indoor air that contains noncarcinogens that present a total noncarcinogenic HI greater than 1.0 for all site-related contaminants released from the subsurface vapor migration pathway.
- To prevent the future migration of hydrogen sulphide gas and methane gas beyond the boundary of the landfill.
- To establish a landfill boundary gas monitoring program that will ensure compliance with all the RAOs listed above for air.

Remedy Implementation

After approval of the RD in June 2010, EPA issued a notice to proceed with RA to Bayer later that month. Bayer began preliminary activities at the site, such as clearing and grubbing, in the fall of 2010. Actual construction activities followed when Bayer mobilized to the site on March 21, 2011 and started construction of the enhanced cover and gas management system. Removal of surface debris and contaminated soil from the CDA was completed by November 2011. After demobilizing for winter in December 2011, work on the landfill resumed in late April 2012 until construction was completed in June 2012. EPA conducted a pre-final construction inspection on June 14, 2012, followed by an Agency letter to Bayer on June 21, 2012 describing the remaining activities (punch list) to be completed. On June 29, 2012, Bayer submitted correspondence to EPA indicating completion of remaining activities at the site, in accordance with EPA's June 21st letter. Prior to initiation of work in the landfill, Bayer completed the water hookups of the 39 homes located east of the site, along with abandonment of the drinking water wells found in those homes. While there may have been a few homes on the east side that declined free water hookups provided by Bayer, EPA has been told that either the resident decided to connect themselves (1 home), the house was vacant (1 home), or was being sold (1 home). Efforts to notify these residents were made by Bayer to the satisfaction of EPA. The ROD Amendment also required the abandonment of drinking water wells from 7 residences located south of the landfill. These homes south of the landfill were provided city water back in the 1990s. Bayer subsequently completed the abandonment of these drinking water wells by mid-July 2012.

III. Demonstration of Cleanup of Activity QA/QC

A Construction Quality Assurance Plan (CQAP) was prepared in conjunction with the remedial design to address the activities necessary to ensure compliance with the requirements of the remedy. The protocols contained in the CQAP were employed

during construction to ensure that the construction of the engineered barrier was performed in accordance with the ROD Amendment and RD plans and specifications. Details of the procedures used to ensure the quality of the construction work were in the approved CQAP.

The construction completion activities at the site were consistent with the ROD Amendment, the Scope of Work (SOW) in the CD, and the approved RD plans and specifications.

IV. Activities and Schedule for Site Completion

The following post-construction activities will be completed according to the schedule, below:

Activity	Estimated Completion Date	Responsible Organization
Completion of RA Report	August 31, 2012	PRP
1st Five-Year Review Report	March 21, 2016	EPA
Final Closeout Report	March 2029	EPA
Deletion from NPL	June 2029	EPA

V. Summary of Remediation Costs

ROD Estimate of Capital Costs and Annual O&M Costs

The capital cost for the selected remedy was estimated in the ROD Amendment to be approximately $3,007,932. Operation & Maintenance (O & M) cost was estimated to be $3,147,028. Total present work cost was estimated at $7,475,388, assuming 30 years of O & M.

Construction Contract Award Amount

The Himco site is a PRP-lead site and Bayer is not required to provide EPA with construction cost information.

Five-Year Review

Pursuant to CERCLA Section 121(c) and as provided in the current guidance on Five-Year Reviews: OSWER Directive 9355.7-02, Structure and Components of Five-Year Reviews, May 23, 1991, OSWER Directive 9355.702A, Supplemental Five-Year Guidance, July 26, 1994, and the Second Supplemental Five-Year Review Guidance, December 21, 1995, EPA must conduct a statutory Five-Year Review at the Himco site since hazardous substances will remain at the site above health-based levels that allow unrestricted exposures after completion of the remedial action; the ROD Amendment for the site was signed on September 14, 2004; and the Remedial Action was selected under

CERCLA §121. The first Five-Year Review will be completed five years after the Remedial Action start date of March 21, 2011.

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7-19-12
Date